

TECHNICAL SPECIFICATION OF VRF AC UNIT FOR MDP HALL AT BHEL RANIPET

S.no	DESCRIPTION	VENDOR'S CONFIRMATION	REMARKS
1	VRF SYSTEM DESCRIPTION		
1.1	Supply, installation, testing & commissioning of Microprocessor control based VARIABLE REFRIGERANT FLOW Air-Conditioning unit in MDP HALL.		
1.2	Cooling Range by the VRF unit in the MDP hall		
2	REFRIGERANT		
	Refrigerant should be of R410a		
	Initial Charge of refrigerant gas		
3	INDOOR UNITS:		
3.1	VRF high static indoor units of the 34- 36TR capacities including shifting, supports.		
3.2	No of indoor units		
3.3	Model		
3.4	Type of Mounting		
3.5	Corded Remote Controls for the indoor units		
3.6	Air filter details		
3.7	Fan Motor Details		
3.8	Required number of Refnet Joints for all the above Indoor units		
4	OUTDOOR UNITS		
4.1	Variable Refrigerant Flow Out Door unit package consists of digital scroll compressor, air cooled condenser, fan, control panel, stands of outdoor units, vibration isolation pads, etc.		
4.2	No of Outdoor Units		
4.3	Power rating of individual outdoor units		
4.4	Compressor Model		
4.5	Power requirement for compressor		
4.6	Condenser fan motor details		
5	Central Monitoring Unit suitable for monitoring and controlling of all outdoor and indoor units. Total number of Central Monitoring units shall be capable of connecting to all the above indoor units and outdoor units.		
6	PIPING DETAILS:		

6.1	Copper refrigerant piping of various sizes with necessary supports, fittings and clamps between condensing unit & indoor units along with suitable insulation		
6.2	Details of Insulation Materials: Material Make: (Nippon/Rajcon/Superlan) Thickness		
6.3	All Piping shall have adequate insulation or Lining to avoid condensation.		
6.4	PVC drain piping of various sizes (25/32/40 mm) with supports, clamps and 9 mm thickness Nitrile rubber tube insulation with adequate slope shall be provided.		
7	CABLING:		
7.1	3C * 1.5 sq. mm. unarmoured copper cable in 20 mm dia FRLS PVC conduit for communication between indoor and outdoor units of VRF system		
7.2	3C * 1.5 sq. mm. unarmoured copper cable in 20 mm dia FRLS PVC conduit between indoor unit and corded remote.		
8	AIR DISTRIBUTION SYSTEM:		
	Existing Distribution Ducting, dampers, louvres/grill system in the MDP hall is to be used as a air distribution system. [Only for joining the individual		
8.1	Unit Output ducts to Inlet Distribution duct at AHU room as per item no 8.2 is vendor scope. Vendor to confirm and prove the performance with the existing Air Distribution System.		
8.2	For joining the individual Unit Output ducts to Inlet Distribution duct at AHU room: Supply air duct of Machine fabricated GSS Ducting with angle iron flanges, GI full threaded rods and slotted rail support of 22 G. (Make: SAIL/JINDAL/ESSAR) Factory fabricated. Galvanized sheet steel duct work of suitable thickness with TDF flanges of different width along with duct stiffeners etc., of required quantity with acoustic lining of ducts to be carried out with 25 mm thick, 24kg/cum density aluminum foil faced rubber insulation of Armacell / thermobreak make with necessary accessories. [acoustic insulation (UP Twiga)]. Acoustic Insulation shall be stuck to the inside of the ducting with adhesive. Bolt and nuts with washers shall be fixed.		
9	DAMPERS:		
9.1	Required GI dampers at the output ducts of the individual units for Volume Control dampers of 16G sheet with rubber gasket of 4 sq.m		

9.2	Aluminium powder coated Fresh air / Exhaust air louvers of non vision type with nylon mosquito net etc of 1 sq.m at AHU room.		
9.3	Anti Vibration pads,6"x6"x 3/4"		
9.4	MS channel for Out door unit.		
9.5	MS Catwalk for Copper pipe Terrace floor only.		
9.6	FRP Paint for hard drawn refrigerant pipes Terrace only.		
9.7	Fire retardant double Canvas connection		
10	DISMANTLING AND HANDING OVER OF EXISTING AC PLANT IS SUPPLIER'S SCOPE		
10.1	Dismantling of Indoor packaged unit		
10.2	Dismantling of Chilled water Piping		
10.3	Dismantling of Cooling Tower		
10.4	Dismantling of Chilled water Pump		
11	Vendor should specify the total power requirement of the equipment. BHEL will provide necessary power supply near the installation area. Vendor should arrange the necessary cable required from isolator to equipment.		
12	Guarantee period as per BHEL Terms and Conditions		
13	The contractor shall ensure that systems shall not cause or exceed the vibration levels and they shall be within limits as per standards.		
14	Detailed heat load calculations to be furnished along with technical bid.		
15	Vendor to furnish the list of spares for VRF unit, for the purpose of our future requirement along with supplies(No need of supply of spares, it is only list)		
16	DOCUMENTATION (To be furnished along with supplies): Three sets of Operating & Maintenance Manuals (Hard copies) in English language should be supplied along with the VRF unit.		
17	ERECTION & COMMISSIONING		
17.1	Supplier shall be responsible for carrying out the Erection, testing and commissioning of the AC plant. Required technical personnel and labour required for the same shall be bourned by the vendor. Tools, tackles, required for the same shall be a arranged by the vendor. Crane, if required, will be provided by BHEL free of cost. Service requirement like power, air & water shall be provided by BHEL at only one point free of cost.		
17.2	Original test certificates for VRF unit to be furnished.		

18	The details of the MDP HALL required for the design of VRF are listed below: Length: 24.55m Width: 11.4m Height: 2.8m Total Volume: 783.636 cubic meters Total Area : 279.87 sq meters Number of participants in the hall: Minimum 25 persons to Maximum 250 persons Outside Temperature: 46 deg. Centigrade Inside Temperature : 22 +/- 2 deg. Centigrade Inside Relative Humidity: 55% +/- 5% RH Total no of tube lights/fitings: 26 X 80 = 2080 W Air handling Unit room: 6 X 40 W= 240 W load in the Hall: 2320 W Inside Lighting Load: 1.5 Watts/Sq.ft		
19	Overall Dimensions :		
	1) Indoor Unit		
	2) Outdoor Unit		
20	Total Area required for the equipment:		
	1) Indoor Unit		
	2) Outdoor Unit		
21	a) Total Weight of the VRF unit		
	b) Indoor Unit		
	c) Outdoor Unit		
22	Client list to be submitted along with offer		

Note: Vendors may visit site to access the quantum of dismantling work and site conditions for preparing offer for new AC plant. Contact for site visit: Mr. S.Panneerselvam, Sr.Engineer/M&S. Tel:04172-284602, Mob: 9442215670